Samiah Moustafa
- Bay Area Environmental Research Institute/NASA Ames Research Center

Ruben Delgado
- Joint Center for Earth Systems Technology, University of Maryland, Baltimore County

David Moore
- University of California Los Angeles

Maurice Roots
- University of Maryland, Baltimore County

Kristina Pistone
- Bay Area Environmental Research Institute

Selene Willis
- The Ingenuity Project

John Anderson
- Hampton University

Belay Demoz
- University of Maryland Baltimore County

Mintesinot Jiru
- Coppins University

Paulinus Chigbu
- University of Maryland Eastern Shore

Ali H Omar
- NASA/Langley Research Ctr

Alicia Hoffman
- University of Wisconsin Madison

Emily Faber
- University of Maryland Baltimore County

Kylie Hoffman
- University of Maryland Baltimore County

Mariel Friberg
- University of Maryland

Richard Moore
- NASA Langley Research Center

Joseph Wilkins
- Howard University

Richard Damoah
- Morgan State University

Charles M Ichoku
- NASA Goddard Space Flight Ctr

Dong Liang Wu
- Climate and Radiation Laboratory, NASA/GSFC

Charles K Gatebe
- NASA Ames Research Center

NASA's Student Airborne Science Activation for Minority Serving Institutions: Inaugural Program, Educational Outcomes, and Lessons Learned

Abstract

The NASA Student Airborne Science Activation (SaSa) for Minority Serving Institutions (MSIs) held its inaugural summer research program for early career undergraduates interested in the Geosciences. SaSa is a NASA Science Activation funded 8-week summer internship program. Twenty-four first- and second-year undergraduates from MSIs across the U.S. participated in the summer program - June 6 to July 29, 2022. Students had the opportunity to gain hands-on research experience in all components of an airborne science campaign including flying on-board a NASA research aircraft to collect atmospheric measurements. Students conducted independent research projects related to the atmosphere, ocean, and geosciences that feed into NASA's broader Earth Science Division's and Decadal Survey goals using air quality, meteorological, and oceanic measurements from surface, airborne, and satellite-based observations. The program split its time between partner institution, University of Maryland Baltimore County and NASA's Wallops Flight Facility in Wallops Island, Virginia. Students also made site visits at partner institutions, including: Hampton University, University of Maryland Eastern Shore, Morgan State University, Howard University, and Coppin State University and attended lectures from visiting faculty and NASA Subject Matter Experts. Students were guided on their research projects by near-peer graduate mentors, SaSa program leadership, co-Is at partner institutions, and NASA scientists to address two major research themes: 1) how human-caused air pollution has human and environmental implications, and 2) how large-scale meteorological factors influence local weather conditions. Students sorted into research groups, based on sub-discipline areas in the Geosciences, including: "Clouds, Aerosols and Radiation", "Meteorology and Planetary Boundary Layer", "Air Quality: Particle Pollution and Trace Gases", and "Air-Water-Land Interface". Their research was presented as 3-minute lightning talks and in-person poster presentations at a close-out event at NASA Goddard Space Flight Center in Greenbelt, Maryland. The students' inter- and trans-disciplinary research experiences centered in the use of multiple ground, airborne, and satellite remote sensing NASA Earth Science Division assets. Providing a unique experience aligned to recognize the societal benefits that NASA contributes in the areas of resource management, air quality monitoring and policy decisions, energy and weather predictions, and research on the Earth's climate. The SaSa program aims to increase the number of students from MSIs that identify as underrepresented or underserved individuals in the Geosciences discipline, Earth System Science graduate programs, and the NASA workforce. A summary of the summer research program, educational, scientific, and programmatic outcomes, as well as lessons learned will be presented.

Presentation Link:
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